# FLEXLAB T: THE WORLD'S MOST ADVANCED BUILDING EFFICIENCY TEST BED



## THE PROBLEM

Many buildings are designed to be energy efficient, but once they're up and running, use a lot more energy than planned. In fact, a recent study<sup>1</sup> found buildings designed to be energy efficient sometimes end up using twice the energy expected, posing a huge obstacle to reaching ambitious CA and US clean energy goals.

# **OUR SOLUTION**

By measuring a building's energy use under real-world conditions and on a significant scale, FLEXLAB provides real time assessment of building energy use. FLEXLAB offers a way to test-drive energy efficiency systems, identify problems, and make changes before breaking ground. FLEXLAB unleashes the real potential of energy efficiency in buildings.

#### FLEXLAB LEADING THE WAY

FLEXLAB is the brainchild of our nation's leading energy efficiency experts at the U.S. Department of Energy's Lawrence Berkeley National Laboratory—the home of energy efficiency innovation for decades.

Berkeley Lab's scientists are developing game-changing innovations, including: window coatings, simulation software, electronic ballasts, and appliance standards that have saved consumers a combined \$484 billion.<sup>2,3</sup>

FLEXLAB launches the next chapter of Berkeley Lab's leadership

by unlocking the mysteries
of integrated design,

of integrated design,
and developing new
technologies creating
transparency throughout
the design build process
which will eventually
transform the way
buildings perform.

FLEXLAB is an exciting contribution that will help industry.

DAVID DANIELSON

**DAVID DANIELSON**ASSISTANT SECRETARY,
U.S. DEPT. OF ENERGY

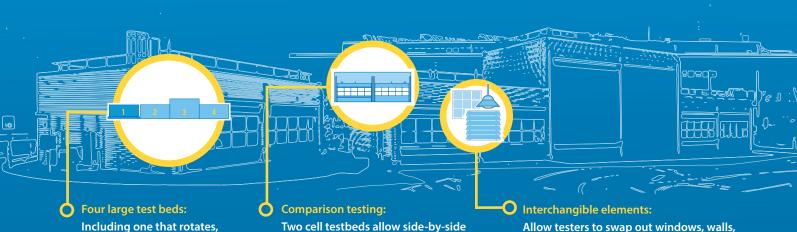
### WHAT FLEXLAB CAN DO FOR YOU

FLEXLAB is the first testbed in the world that can evaluate the energy efficiency of major building systems, as an integrated system, under real-world conditions. Stakeholders can evaluate energy-efficient building technologies individually or as integrated systems in advance of building projects or retrofits, in order to:

- Optimize integrated systems to maximize energy savings
- **Ensure occupant comfort and user-friendliness**
- **Verify cost-benefit numbers**
- **Train building operators**
- **Build confidence in new technologies**

FLEXLAB can help solve the integrated design problem.

> **KEVIN HYDES** CEO, INTEGRAL GROUP



tests for comparisons of energy

efficiency technologies.

Test-drive technologies:

scenarios.

allow a variety of testing

Users can test-drive different technologies for HVAC systems, lighting, windows, building envelope, control systems, and plug loads in different locations globally.

- Individual circuits and meters: Every outlet has its own circuit and power metering.
- High accuracy sensors and instrumentation: Includes embedded sensors throughout the facility.

skylights, floors, lighting, HVAC systems, and other architectural elements.

Lighting and plug-load test bed:

Measures energy power, technology performance, and evaluates more subjective factors, such as visual comfort and user-friendliness.

On-site training:

Saves FLEXLAB users time on ramping-up efficiency operations.

VISIT flexlab.lbl.gov FOR MORE INFORMATION.



- 1 New Buildings Institute Study, 2008: How Accurate is Energy Modeling in the Market? Mark Frankel and Cathy Turner, White Salmon, WA: NBI, 2008. (http://newbuildings.org/sites/default/files/ ModelingAccuracy\_FrankelACEEE2008\_0.pdf)
- 2 National Research Council. Energy Research at DOE: Was It Worth It? Energy Efficiency and Fossil Energy Research 1978 to 2000. Washington, DC: The National Academies Press, 2001. ISBN: 0-309-07448-7 (http://www.nap.edu/catalog/10165.html)
- 3 Stephen Meyers, Alison Williams, and Peter Chan, 2013. Energy and Economic Impacts of U.S. Federal Energy and Water Conservation Standards Adopted from 1987 through 2012. LBNL-6217E (http://escholarship.org/uc/item/54b4782q)